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Date: January 8, 2016

To: Wendy Rhoades, Case Manager

CC: Charles Brigance, P.E., Carlson, Brigance & Doering, Inc.

Reference: Sun Chase PUD TIA

Zoning Case: C814-2012-0163

The Transportation Review Section has reviewed the Traffic Impact Analysis (TIA) for the Sun Chase PUD, dated October 2, 2015, and offers the following comments:

TRIP GENERATION

The proposed Sun Chase PUD is a 1,604-acre development located in the northwest quadrant of the Pearce Lane and Wolf Lane intersection and within the limited-purpose jurisdiction of the City of Austin. The subject property counts with approved subdivision preliminary plans but is currently undeveloped and not zoned. The proposed zoning is Planned Unit Development (PUD) and it is to be a mixed-use development consisting of single-family homes, mixed residential, multi-family apartments, mixed commercial uses, an elementary school, a junior high school, a wastewater treatment plant, a fire station, and parkland. The Sun Chase PUD is comprised of four approved Municipal Utility Districts (MUDs) and is to be built in three phases with an estimated full build-out in the year 2031.

Based on the standard trip generation rates established by the Institute of Transportation Engineers (ITE Trip Generation, 9th Edition), the proposed PUD development is estimated to generate approximately 5,622 unadjusted AM peak-hour trips (PHTs) and 7,696 unadjusted PM peak-hour trips upon build-out as shown in Table 1. However, ITE Trip Generation 9th Ed. allows adjusted trip rates applicable to certain land uses resulting in reduced trips to/from the site and identified as either pass-by traffic or internal-capture trips. Accordingly, Table 2 indicates 4,798 adjusted trips during the morning peak-hour (AM) and 5,642 trips during the evening peak-hour (PM). In addition, please see Exhibit "A" for a breakdown of the proposed land uses for each MUD along with their corresponding size, ITE code, and trip generation.

Table 1. Summary of Unadjusted Peak-Hour Trip Generation (PHTs)										
		AM	l Peak H	our	PN	I Peak F	lour			
Municipal Utility District (MUD)	ADT	Total	Enter	Exit	Total	Enter	Exit			
MUD No. 1 Total Unadjusted Trips	14,168	739	234	505	956	564	392			
MUD No. 2 Total Unadjusted Trips	29,149	1,740	762	978	2,338	1,229	1,109			
MUD No. 3 Total Unadjusted Trips	14,940	1,356	487	869	1,460	838	622			
MUD No. 4 Total Unadjusted Trips	35,876	1,787	800	987	2,942	1,515	1,427			
Total Unadjusted Trips (MUDs 1-4)	94,133	5,622	2,283	3,339	7,696	4,146	3,550			

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Table 2. Summary of Adjusted Peak-Hour Trip Generation (PHTs)											
		AM	l Peak H	our	PN	I Peak H	lour				
Municipal Utility District (MUD)	-	Total	Enter	Exit	Total	Enter	Exit				
MUD No. 1 Total Adjusted Trips	-	593	164	429	745	458	287				
MUD No. 2 Total Adjusted Trips	-	1,422	599	823	1,556	849	707				
MUD No. 3 Total Adjusted Trips	-	1,261	439	822	1,282	751	531				
MUD No. 4 Total Adjusted Trips	_	1,522	666	856	2,058	1,086	972				
Total Adjusted Trips (MUDs 1-4)	-	4,798	1,867	2,930	5,641	3,144	2,497				

DATA ASSUMPTIONS

- 1. The annual growth rates for the Sun Chase PUD were based on the traffic projections using the CAMPO long range travel demand model for an 18-year period until full build-out in 2031. Varying growth rates with an average 1.029% annual growth was used for this proposed development. In addition, background traffic volumes for 2031 included the estimated traffic volumes for the Sun Chase MUDs 1, 2, 3, and 4.
- 2. Pass-by trip reductions are allowed for certain commercial uses based on data provided in the ITE Trip Generation, 9th Edition. A pass-by reduction of 34% was allowed for the retail uses only during the PM peak period. A 49% pass-by reduction was allowed in the AM peak period and 50% in the PM peak period for the fast-food restaurants with drive-thru windows. No pass-by reductions during the AM peak and PM peak periods were allowed for any of the other proposed land uses.
- 3. ITE Trip Generation, 9th Edition, allows an internal capture trip reduction for large, mixed-use developments because a percentage of the vehicle trips will occur wholly within the PUD. Based on ITE guidelines, a 5% internal capture reduction was allowed only for the retail uses and fast-food restaurants with drive-thru windows during the AM and PM peak periods. No internal capture reductions during the AM peak and PM peak periods were allowed for any of the other proposed land uses.
- 4. No reductions were taken for transit use during any period of the analysis. However, Capital Metro service may expand its service to this development in the future.
- 5. Based on the TIA's scope of work, traffic counts were taken at various key locations to establish the circulation characteristics of the roadways in the study area. The traffic counts taken in conjunction with data from CAMPO and other sites formed the basis for the future traffic assumptions in the study area.

EXISTING AND PLANNED ROADWAYS

Pearce Lane – Pearce Lane is built as a two-lane roadway between SH 130 to east of Wolf Lane. The CAMPO 2035 Regional Transportation Plan calls for the widening of the roadway in the vicinity of Ross Road to a four-lane arterial (MAD-4) with bike lanes. The TIA assumed that the planned construction for this road would be completed by 2031. Pearce Lane is listed as Bike Route No. 70 in the Bicycle Plan. Per the approved phasing agreement by Travis County, the TIA assumes that the segment of Pearce Lane adjacent to the Sun Chase PUD will be widened to four lanes with a center turn lane at the major intersections.

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SH-71 – This state highway is located approximately 2 miles north of the proposed Sun Chase PUD and is maintained by the Texas Dept. of Transportation (TxDOT). SH-71 is classified as a MAD-4 in the Austin Metropolitan Area Transportation Plan. SH-71 is listed as Bike Route No. 418 in the Bicycle Plan. The 2009 traffic volume on SH-71 east of SH 130 was approximately 30,000 vehicles per day (vpd).

Wolf Lane – This road exists as a two-lane roadway between SH-71 to the south of Pearce Lane. Wolf Lane creates the eastern boundary for the Sun Chase PUD. Wolf Lane is listed as Bike Route No. 79 in the Bicycle Plan. The CAMPO 2035 Regional Transportation Plan does not indicate any planned improvements to this roadway. However, the TIA assumes that this roadway will widened to at least a three-lane undivided road (two travel lanes with a center turn lane) along the frontage of the Sun Chase PUD.

Ross Road (North) – Currently, this roadway is built as a two-lane undivided road between SH 71 and Pearce Lane. The 2035 CAMPO Regional Transportation Plan calls for this road to be widened to a four-lane divided arterial w/bike lanes (MAD 4) between 2026 and 2035. Ross Road is listed in the Bicycle Plan as Bike Route No. 73. The TIA assumes that this roadway will widened to a MAD-4 with bike lanes by 2031.

Ross Road (South) – Ross Road is built as a two-lane undivided road south of Pearce Lane. The 2035 CAMPO Regional Transportation Plan calls for this road to be widened to a fourlane divided arterial w/bike lanes (MAD 4) between 2026 and 2035. The TIA assumes that this roadway will widened to that standard by 2031.

Linden Lane – This roadway is currently a two-lane undivided road south of Pearce Lane. The 2035 CAMPO Regional Transportation Plan does not recommend any improvements to this road. Currently, this road is not listed in the Bicycle Plan.

Meurer Lane – This roadway is located north of the Sun Chase PUD and is currently a two-lane undivided road. The 2035 CAMPO Regional Transportation Plan does not recommend any improvements to this road. Currently, this road is not listed in the Bicycle Plan.

TRAFFIC ANALYSIS

The impact of site development traffic on the existing area roadways was analyzed. Four time periods and travel conditions were evaluated:

- Pre-development Conditions (Existing)
- Phase IA Completion Conditions (2019)
- Phase IB Completion Conditions (2021)
- Phase II Full Build-Out Conditions (2031)

INTERSECTION LEVEL OF SERVICE (LOS)

The TIA analyzed 12 intersections, 10 of which are or would be signalized. Table 3 shows the existing levels of service (LOS). Tables 4, 5, and 6 indicate the projected levels of service for each planned phase of development. The projected levels of service for these analyzed intersections include two conditions: 1) with Background Traffic Only (Forecasted) and 2) with Total Traffic (PUD + Forecasted) for all three planned phases of development (2019, 2021, and 2031), assuming that the improvements recommended in the TIA are built.

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Table 3. Existing Intersection Levels of Service (LOS)

			·	· · · · · · · · · · · · · · · · · · ·
Intersection	AM Delay	AM LOS	PM Delay	PM LOS
Ross Rd. West/Pearce Ln.:	Delay	100	Delay	100
Overall	2.7	Α	2.1	А
NB Left/Right	13.3	B	15.5	C
WB Left/Thru	7.7	A	9.0	A
Ross Rd. East/Pearce Ln./Los Cielos Blvd.	7.1	Α	13.4	В
Linden Ln./Pearce Ln.:				
Overall	2.1	Α	3.8	Α
NB Left/Right	11.7	В	12.2	В
WB Left/Right	7.4	Α	8.0	A
Wolf Ln./Pearce Ln.*:				
Overall	9.9	Α	9.4	Α
 NB Left/Thru/Right 	9.2	Α	8.4	Α
EB Left/Thru/Right	8.4	Α	10.1	В
 WB Left/Thru/Right 	10.7	В	8.3	Α
 SB Left/Thru/Right 	8.5	Α	8.7	Α
Meurer Ln./Wolf Ln.:				
Overall	0.2	Α	1.1	Α
NB Left/Thru	0.0	Α	7.4	Α
EB Left/Right	9.3	Α	9.4	Α
SH 71/Wolf Ln./Buck Ln.:				
Overall	5.6	Α	3.0	Α
 NB Left/Thru/Right 	94.2	F	130.5	F
EB Left	17.2	С	11.3	В
WB Left	10.2	В	18.5	С
 SB Left/Thru/Right 	63.7	F	33.3	D

^{*} All way stop control

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Table 4. Projected Levels of Service (LOS)

Phase IA (2019) Intersection LOS with Background Traffic Only

Intersection	AM Delay	AM LOS	PM Delay	PM LOS
Ross Rd. West/Pearce Ln.:	,			
Overall	2.1	Α	2.1	A
NB Left/Right	13.3	В	17.1	В
WB Left	7.6	Α	9.4	Α
Ross Rd. East/Pearce Ln./Los Cielos Blvd.	6.5	Α	16.2	В
Linden Ln./Pearce Ln.:				
Overall	1.8	Α	1.4	Α
NB Left/Right	15.3	В	12.3	В
WB Left	7.8	А	8.2	Α
Wolf Ln./Pearce Ln.*	9.2	Α	9.3	Α
Meurer Ln./Wolf Ln.:				
Overall	0.1	Α	0.5	А
NB Left	0.0	Α	7.4	Α
EB Left/Right	9.4	Α	9.2	Α
SH 71/Wolf Ln./Buck Ln.	9.5	Α	6.7	Α

Phase IA (2019) Intersection LOS with Total Traffic

	AM	AM	PM	PM
Intersection	Delay	LOS	Delay	LOS
Ross Rd. West/Pearce Ln.:				
 Overall 	2.2	Α	2.2	Α
NB Left/Right	15.7	С	21.0	С
WB Left	7.7	Α	10.0	Α
Ross Rd. East/Pearce Ln./Los Cielos Blvd.	9.2	Α	37.2	D
Sweet Pea Dr./Pearce Ln.	15.5	В	16.1	В
Sun Chase Pkwy./Pearce Ln.	16.0	В	15.5	В
Linden Ln./Pearce Ln.:				
 Overall 	2.4	Α	1.6	Α
 NB Left/Right 	28.7	D	17.5	В
WB Left	8.6	А	8.7	Α
Wolf Ln./Pearce Ln.*	12.1	В	11.3	В
Meurer Ln./Wolf Ln.:				
Overall	0.0	Α	0.2	Α
NB Left	0.0	Α	7.7	Α
EB Left/Right	10.7	В	10.6	В
SH 71/Wolf Ln./Buck Ln.	10.4	В	11.1	В

^{*} All way stop control.

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Table 5. Projected Levels of Service (LOS)

Phase IB (2021) Intersection LOS with Background Traffic Only

Intersection	AM	AM	PM	PM
	Delay	LOS	Delay	LOS
Ross Rd. West/Pearce Ln.:				
Overall	2.5	Α	2.6	Α
NB Left/Right	15.3	С	21.2	С
WB Left	7.7	Α	10.	Α
Ross Rd. East/Pearce Ln./Los Cielos Blvd.	11.5	В	19.9	В
Linden Ln./Pearce Ln.:				
 Overall 	2.0	Α	1.9	Α
NB Left/Right	13 <i>.</i> 5	В	13.2	В
WB Left	7 . 5	Α	8.5	Α
Wolf Ln./Pearce Ln.*	9.4	Α	9.6	А
Meurer Ln./Wolf Ln.:				
Overall	0.1	Α	0.5	Α
NB Left	0.0	Α	7.4	Α
● EB Left/Right	9.5	Α	9.3	Α
SH 71/Wolf Ln./Buck Ln.	11.2	В	8.6	Α

Phase IB (2021) Intersection LOS with Total Traffic

	AM	AM	PM	PM
Intersection	Delay	LOS	Delay	LOS
Ross Rd. West/Pearce Ln.:				
Overall	3.7	Α	5.2	Α
NB Left/Right	30.9	D	56.7	F
WB Left	8.1	Α	11.9	В
Ross Rd. East/Pearce Ln./Los Cielos Blvd.	44.3	D	40.3	D
Sweet Pea Dr./Pearce Ln.	19.1	В	19.8	В
Sun Chase Pkwy./Pearce Ln.	25.8	С	22.3	С
Linden Ln./Pearce Ln.:				
Overall	5.4	Α	4.6	Α
NB Left/Right	70.9	F	54.8	F
"WB Left	9.0	Α	10.1	Α
Wolf Ln./Pearce Ln.*	18.6	С	24.7	С
Meurer Ln./Wolf Ln.:			,	
 Overall 	0.0	Α	0.1	Α
NB Left	0.0	Α	8.2	Α
● EB Left/Right	13.5	В	14.4	В
SH 71/Wolf Ln./Buck Ln.	17.8	В	36.5	D

^{*} All way stop controlled.

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Table 6. Projected Levels of Service (LOS)

Phase II (2031) Intersection LOS with Background Traffic Only

Intersection	AM Delay	AM LOS	PM Delay	PM LOS
Ross Rd. West/Pearce Ln.	9.6	Α	14.3	В
Ross Rd. East/Pearce Ln./Los Cielos Blvd.	11.6	В	16.3	В
Linden Ln./Pearce Ln.	10.8	10.8 B 9.4		А
Wolf Ln./Pearce Ln.	12.6	В	20.2	С
Meurer Ln./Wolf Ln.:				
Overall	0.0	Α	0.3	Α
NB Left	0.0	Α	7.5	Α
EB Left/Right	10.0	В	9.9	Α
SH 71/Wolf Ln./Buck Ln.	25.4	D	29.8	С

Phase II (2031) Intersection LOS with Total Traffic

<u></u>	T	T	1	7
	AM	AM	PM	PM
Intersection	Delay	LOS	Delay	LOS
Ross Rd. West/Pearce Ln.	13.8	В	32.3	С
Ross Rd. East/Pearce Ln./Los Cielos Blvd.	22.5	С	39.9	D
Sweet Pea Dr./Pearce Ln.	14.6	В	13.8	В
Sun Chase Pkwy./Pearce Ln.	27.8	С	25.7	С
Linden Ln./Pearce Ln	12.8	В	12.9	В
Rumworth Dr./Pearce Ln.				
Overall	6.6	Α	14.0	В
EB Left	14.0	В	16.3	c
SB Left	87.0	F	323.9	F
SB Right	22.1	С	17.0	С
Wolf Ln./Pearce Ln.	19.5	В	46.3	D
Misu Dr. South/Wolf Ln.	8.7	Α	10.3	В
Waterton Wave Dr./Wolf Ln.	3.8	Α	8.9	Α
Wateree Dr./Wolf Ln.	7.2	А	8.6	Α
Meurer Ln./Wolf Ln.:				
Overall	0.0	Α	0.1	Α
• NB Left	0.0	A	12.8	В
 EB Left/Right 	29.0	D	35.2	E
SH 71/Wolf Ln./Buck Ln.	44.5	D	143.3	F

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RECOMMENDATIONS

- 1) Please see Exhibit "B" for a summary of traffic improvements recommended with the TIA.
- 2) The revised cost estimate for the recommended traffic improvements has not yet been approved by Travis County. The approval of the cost estimates is required prior to 3rd reading. Per Travis County, the fiscal posting for the traffic improvements will be deferred to the subdivision stage in accordance with the approved traffic phasing agreement.
- 3) Prior to full purpose annexation, the TIA may be amended, as required by Travis County. After full purpose annexation, the approved TIA may be amended as required by the City of Austin. Travis County recommends that the TIA and its subsequent amendments be kept on file at the Development Services Department of the City of Austin.
- 4) Development of the PUD should be limited to uses and intensities which will not exceed or vary from the projected traffic conditions assumed in the TIA and all roadways should comply with the intent of the City of Austin's Complete Streets Policy and as approved by Travis County.
- 5) Additional right-of-way for Pearce Lane and Wolf Lane shall be dedicated during the subdivision platting stage.
- 6) Development of this property should not exceed or vary from the projected traffic conditions assumed in the TIA, including peak hour trip generations, traffic distribution, roadway conditions, and other traffic related characteristics.
- 7) Due to the size and complexity of the proposed development, trip generation should be analyzed to ensure compatibility within the assumptions of the TIA as each section/phase within the PUD is developed.
- 8) Development of the PUD shall be in accordance with the Superiority Table for Tiers I & II.

If you have any questions or require additional information, please contact me at 974-7649.

Ivan J. Naranjo, MBA, Senior Transportation Planner

Transportation Review Staff – Land Use Review Division

City of Austin – Development Services Department

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EXHIBIT "A"

Sun Chase PUD

MUDs No. 1 - 4 Trip Generation*

MUD Size Use Size Code Art Total in Out In Out	***************************************	T	1		T		Unadju	sted Vol	umes				Δ	djusted	Volume	S	
Sec	MUD			ITE		AM	,			PM	PM	AM I					PM
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		Sun Chase Total			94,133	5,622	2,283	3,339	7,696	4,145	3,550	4,798	1,867	2,930	5,642	3,144	2,498

^{*} Data taken from Trip Generation, 9th Ed., Institute of Transportation Engineers. All residential uses are shown as number of dwelling units.square feet. Convenience store is shown as number of fueling stations. All other uses are shown as gross square feet.

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EXHIBIT "B"

Phase Roadway Improvements

			Total	Site	Site
Ph.	Location	Improvement	Cost	%	Cost
	Sun Chase Pkwy./Pearce Ln.	Traffic signal	\$165,000.00	1.000	\$165,000.00
1A	SH 71/Wolf Ln.	Traffic Signal	\$165,000.00	0.117	\$19,305.00
	Phase 1A Sub-Total		\$330,000.00		\$184,305.00
1B	Ross Rd. (East)/Pearce Ln./Los Cielos Blvd.	WB right turn lane	\$8,503.00	0.470	\$3,996.41
		EB right turn lane	\$8,503.00	0.470	\$3,996.41
		NB right turn lane	\$3,080.00	0.470	\$1,447.60
	Wolf Ln./Pearce Ln.	EB widened for 3 lanes	\$21,945.00	0.602	\$13,210.89
		WB widened for 3 lanes	\$21,945.00	0.602	\$13,210.89
	Sweet Pea Dr./Pearce Ln.	Traffic signal	\$165,000.00	1.000	\$165,000.00
	Phase 1B Sub-Total		\$228,976.00		\$200,862.20
2	SH 71/Wolf Ln.	EB SH 71 right turn lane	\$90,128.50	1.000	\$90,128.50
		WB SH 71 dual left turn lanes	\$167,640.00	1.000	\$167,640.00
		NB Wolf Lane widened to 4 approach lanes	\$82,830.00	1.000	\$82,830.00
	Linden Ln.	Traffic signal	\$165,000.00	0.754	\$124,410.00
	Ross Rd. (West)/Pearce Ln.	NB widened for separate L-R movements	\$28,215.00	0.538	\$15,179.67
		Traffic signal	\$165,000.00	0.538	\$88,770.00
	Ross Rd. (East)/Pearce Ln./Los Cielos Blvd.	WB right turn lane	\$16,775.00	0.471	\$7,901.03
		EB right turn lane	\$16,775.00	0.471	\$7,901.03
	Misu Dr./Wolf Ln.	Traffic signal	\$165,000.00	1.000	\$165,000.00
	Waterton Wave Dr./Wolf Ln.	Traffic signal	\$165,000.00	1.000	\$165,000.00
	Wateree Dr./Wolf Ln.	Traffic signal	\$165,000.00	1.000	\$165,000.00
	Wolf Ln./Pearce Ln.	EB dual left turn lanes	\$24,310.00	0.602	\$14,634.62
		WB widened to 5 lanes	\$24,310.00	0.602	\$14,634.62
	:	NB widened to 2 lanes	\$16,775.00	0.602	\$10,098.55
		NB 2 acceleration lanes with tapers	\$38,335.00	0.602	\$23,077.67
		SB widened to 5 lanes	\$33,165.00	0.602	\$19,965.33
	Phase 2 Sub-Total		\$1,364,258.50		\$1,162,171.01
	Total		\$1,923,234.50	-	\$1,547,338.21

^{*} Does not include improvements contractually obligated under the terms of the agreement with Travis County.